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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/802,412

03/17/2004

Thomas Kattwinkel

1434.104.101/IFT998US

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08/24/2006

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EXAMINER

BARAN, MARY C

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/802,412 | KATTWINKEL, THOMAS | |
| | Examiner | Art Unit | |
| | Mary Kate B. Baran | 2857 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The action is responsive to the Amendment filed on 09 June 2006. Claims 1-14, 16-24 and 26 are pending. Claims 15 and 25 are cancelled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites, "the drive circuit of claim 24"; however, claim 24 is merely directed to an apparatus and makes no mention of a drive circuit.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-14, 16-24 and 26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

A process is statutory if it requires physical acts to be performed outside the computer independent of and *following* the steps to be performed by a programmed

computer, where those acts involve the manipulation of tangible physical objects and result in the object having a different physical attribute or structure (see MPEP 2106). A claim is limited to a practical application when the method, as claimed, produces a *concrete, tangible and useful result*; i.e., the method recites a step or act of producing something that is *concrete, tangible and useful*. Referring to the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" in determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the *final result* achieved by the claimed invention is "useful, tangible and concrete." (<http://www.uspto.gov/web/offices/com/sol/oq/2005/week47/patgupa.htm>)

The claimed methods perform processes for detecting an operating state or a change in operating state of a DC motor. A signal is sampled, transformed and the transformed signal is then compared to a reference signal, but not subsequently output or used in any manner. No information is presented to a user nor does a physical transformation occur outside the computer as a result. The claims do not produce a concrete, tangible and useful result. Therefore the subject matter claimed is considered non-statutory.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-14, 19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Eckardt (U.S. Patent No. 6,580,284).

Referring to claims 1 and 22, Hala teaches a method for detecting an operating state or a change in an operating state in a system in which at least one analog signal indicating the operating state is present (see Hala, column 1 lines 13-20), comprising: sampling the analog signal or a signal dependent on the analog signal for providing a sampling signal (see Hala, column 9 lines 44-51); generating a transformation signal representing a spectral distribution from a number of signal values of the sampling signal (see Hala, column 9 lines 53-63); and comparing the transformation signal with at least one reference signal representing a spectral distribution (see Hala, column 10 lines 1-7), but does not teach a motor having connecting terminals for the application of a supply voltage, with a voltage present between the connecting terminals being an analog signal indicating the operating state of the motor.

Eckardt teaches a motor having connecting terminals for the application of a supply voltage, with a voltage present between the connecting terminals being an analog signal (see Eckardt, column 9 lines 1-5) indicating the operating state of the motor (see Eckardt, column 2 lines 29-35).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala to include the teachings of Eckardt because detecting a voltage and determining an operating state of the motor would have allowed the skilled

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artisan to collect data for comparison to identify whether the machines that are being driven are in a correct state (see Eckardt, column 1 lines 11-21).

Referring to claims 2 and 23, Hala teaches that the at least one reference signal has been generated from an analog reference signal representing an operating state to be detected (see Hala, column 10 line 63 – column 11 line 10).

Referring to claims 3 and 24, Hala teaches that the at least one reference signal is a transformation signal generated on the basis of previous samples (see Hala, column 10 lines 1-7).

Referring to claims 4 and 5, Hala teaches that the transformation signal and the reference signal are discrete Fourier transforms and that the discrete Fourier transforms are generated by a fast Fourier transform (see Hala, column 11 lines 29-34).

Referring to claim 6, Hala teaches that the sampling signal is band-limited before the transformation signal is generated (see Hala, column 19 lines 31-45).

Referring to claim 7, Hala teaches that the transformation signal is compared with a plurality of reference signals (see Hala, column 11 lines 34-43).

Referring to claim 9, Hala teaches that the magnitudes of the discrete Fourier transforms of the sampling signal and of the at least one reference signal are compared with one another (see Hala, column 12 lines 14-24).

Referring to claim 10, Hala teaches that a state represented by the at least one reference signal is assumed to be present if the sum of the magnitudes of the differences of the individual spectral components of the discrete Fourier transforms of the sampling signal and of the at least one reference signal is less than a reference value (see Hala, column 12 line 54 – column 13 line 13).

Referring to claim 11, Hala teaches that the phases of the Fourier transforms of the sampling signal and of the reference signal are also compared with one another (see Hala, column 12 lines 14-24).

Referring to claim 12, Hala teaches that a sampling frequency is set depending on a determined period duration of the analog signal such that the number of samples determined per period of the signal corresponds to a predetermined number (see Hala, column 11 line 64 – column 12 line 6).

Referring to claim 13, Hala teaches that the period duration is determined by a comparison of the analog signal with a predetermined threshold value (see Hala, column 14 line 57 – column 15 line 2).

Referring to claim 14, Hala teaches that the threshold value is generated by an averaging of the analog signal (see Hala, column 15 line 59 – column 16 line 8).

Referring to claim 19, Hala teaches that 128 samples of the sampling signal are used to form the transformation signal (see Hala, column 11 line 64 – column 12 line 6).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Eckardt (U.S. Patent No. 6,580,284) and in further view of Fukuda et al. (U.S. Patent No. 5,960,373) (hereinafter Fukuda).

Referring to claim 8, Hala and Eckardt teach all the features of the claimed invention except that the samples used to form the transformation signal are subjected to a weighting before the formation of the transformation signal and wherein weighting at least two of the samples are weighted differently.

Fukuda teaches that the samples used to form the transformation signal are subjected to a weighting before the formation of the transformation signal and wherein weighting at least two of the samples are weighted differently (see Fukuda, column 14 lines 21-38).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Eckardt to include the teachings of Fukuda because

weighting the signal would have allowed the skilled artisan to accurately estimate the frequency (see Fukuda, column 14 lines 39-41).

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Eckardt (U.S. Patent No. 6,580,284) and in further view of Smith et al. (U.S. Patent No. 5,523,701) (hereinafter Smith).

Referring to claim 16, Hala and Eckardt teach all the features of the claimed invention except subjecting the voltage to a low-pass filtering and the transformation signal is formed from the signal resulting from the low-pass filtering.

Smith teaches subjecting the voltage to a low-pass filtering and the transformation signal is formed from the signal resulting from the low-pass filtering (see Smith, Figure 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Eckardt to include the teachings of Smith because using a low-pass filter to filter the signal would have allowed the skilled artisan to obtain a useable, high-fidelity level for the signal of interest while rejecting other undesirable signals (see Smith, column 2 lines 63-67).

7. Claims 17, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Eckardt (U.S.

Patent No. 6,580,284) and in further view of Naito et al. (U.S. Patent No. 6,092,028) (hereinafter Naito).

Referring to claims 17 and 26, Hala and Eckardt teach all the features of the claimed invention except that a voltage is determined at both connecting terminals with respect to a reference-ground potential and the voltages determined are compared with one another in order to determine a direction of rotation of the motor.

Naito teaches that that a voltage is determined at both connecting terminals with respect to a reference-ground potential and the voltages determined are compared with one another in order to determine a direction of rotation of the motor (see Naito, column 13 lines 7-18).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Eckardt to include the teachings of Naito because determining a direction of rotation would have allowed the skilled artisan to determine if the vehicle is approaching or retreating from an object to prevent collision.

Referring to claim 20, Hala and Eckardt teach all the features of the claimed invention except determining the operating state of an occupant protection system in a motor vehicle, the analog signal being a signal provided by a sensor.

Naito teaches determining the operating state of an occupant protection system in a motor vehicle, the analog signal being a signal provided by a sensor (see Naito, column 13 lines 44-51).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Eckardt to include the teachings of Naito because determining the state of a protection system would have allowed the skilled artisan to ensure that the system was working properly.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Eckardt (U.S. Patent No. 6,580,284) and in further view of Tamura (U.S. Patent No. 6,301,530).

Referring to claim 21, Hala and Eckardt teach all the features of the claimed invention except that the sensor is a pressure sensor.

Tamura teaches that the sensor is a pressure sensor (see Tamura, column 11 line 62 – column 12 line 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Eckardt to include the teachings of Tamura because a pressure sensor would have allowed the skilled artisan to control the speed of the vehicle (see Tamura, column 12 lines 3-9).

Response to Arguments

9. Applicant's arguments with respect to claims 1-14, 16-24 and 26 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Nakayama does not teach "a DC motor having connecting terminals for the application of a supply voltage, with a voltage present between the

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connecting terminals being an analog signal indicating the operating state of the motor"; however, this limitation is now met by Eckardt. Eckardt teaches diodes for detecting the voltage which is then used to determine the operating state of the motor within the analog circuit (see Eckardt, column 2 lines 29-35 and column 9 lines 1-5).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shibata et al. teach a control system with malfunction detecting device for use in a motor vehicle.

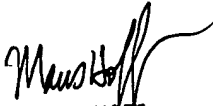
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B. Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 9:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

18 August 2006


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